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ABSTRACT

There is a growing need for environmental education, defined as the part of the total educational process which attempts to convey those values, concepts, and knowledges associated with the external environment, in urban areas. Since more people are moving to urban areas, these areas are becoming plagued with fast growing environmental problems. An enlightened citizenry with a framework of reference sufficient to motivate participation in action programs leading to the alleviation or modification of these environmental problems is needed. The development of this enlightened and informed citizenry can be accomplished by (1) educating the adult population through newspapers, radio, television, films, conferences, workshops, forums, legislative involvement, community planning boards, and local, state, and Federal involvement and support; and (2) educating the children and youth of the nation. It is recommended that an experimental program in environmental education which is related to a regular school curriculum be provided. It should be an integral part of every subject area at each grade level and spiral upward through the grades. This second approach is discussed in this paper. (NQ)

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THE NEED OF ENVIRONMENTAL EDUCATION FOR THE URBANITE

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Throughout the timeline of his development man has been attempting to comprehend the vastness and complexity of the world he lives in. In contemporary times man's problem still remains the same. How can he assimilate with understanding all of the aspects of his external environment, all of the events that take place in that environment and his relationship to them?

Perhaps the most simplified way is to view the external surroundings through direct experience and then it may be probable that man can begin to understand and plan for a more hospitable world. Education can and should assume responsibility for the provision of those environmental experiences that it is best qualified for. Environmental education is then defined as that part of the total educational process which attempts to convey those values, concepts and knowledges associated with the external environment. It concerns itself with the development of an enlightened citizenry, both existential and potential, which because of involvement in an experiential program will be able to make wise and judicious decisions with reference to environmental problems and situations.

<u>In the beginning</u>:

Mankind is a species known to science as homo sapiens. Man stands on two feet and as a species has the unique ability to look at himself objectively. The basic human nature of man is civilized and barbaric, generous and greedy, courteous and cruel, courageous and cowardly, hardworking and lazy, sensible and stupid. But mankind exists and as a social animal represents one of nature's most recent experiments.

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Looking back with pride at his evolution, he was astonished at the rapid rate his ancient predecessors overcame their vulnerability through the ability to invent and use tools. He then proceeded to build the beginnings of civilization in less time than it took his earliest predecessors to invent the stone ax. This new civilization ultimately required habitation in large groups for security reasons. Thus the encampment, the village, and finally the town was born.

Usually a body of water such as a lake, a river, or an ocean was selected because of the accessibility of food and also it provided a mode of travel. As increased leisure time became prevalent, the proximity near water also provided a site for recreation.

For a multitude of reasons there was a strong centripedal movement to the cities. The urban environment became the center of commerce and industrialization. The pagan concept of exploitation of the land and moving on to new fertile soils was continued into the early and middle Christian eras of time. However, the structure of the family unit changed when the inheritance of all land was passed on to the eldest son and the younger males received very little or none at all. This change in social patterns caused western society to take a new look at the agricultural structure. In addition, rural folk became tired of the rigorous routine of a primitive agricultural life and provided another motive for the migration to urban centers.

The new world offered different opportunities to those not first born and other relatives. The words of Horace Greeley were sung long before he actually phrased them and lived. This was demonstrated from the very earliest days of the colonial settlements. The cry echoed, "go west young man" for opportunities. The land for taking changed the social structure into equality in lieu of autocratic rulers and town councils became the governing bodies of these new small settlements.

In a relatively short period of time the American industrial revolution came into being and became the catalyst for a large migratory movement to the urbanized areas. Great changes happened to American modus vivendi.

Until a few decades ago America was still a rural land with an endless span of open space, deep rivers of limitless fresh water, and the air was swept clean by the flow of westerly winds. In the early part of this scene a frontier wife washed clothes with lye soap rendered from hog fat and wood ashes. When the washing chores were done she simply cast the water out the door where it sank into the soil. If the soil nutrients were impaired it did not matter for it was soon rejuvenated by the droppings of foraging farm animals. There were few cases of water contamination because sun, fresh air and some bacteria were enough to decompose the human sewage. Animal manure was spread on the fields as fertilizers and any other accumulated material waste was simply placed in a gully or ditch and became an erosion control.

There were no tin containers in great quantity since the farm wife did her own canning. There were no plastic containers, disposable bottles, cellophane wrappings, or aluminum foil for individual packaging of food products was not yet a supermarket fetish. Woodsmoke coming from a house chimney was only prevalent to any great degree during the cold months and did not represent a threat to the biosphere.

The pendulum swings:

The situation changed as the years passed by. Small towns became bigger and the problem of what to do with waste products became bigger. There were more people and this represented increased human and material waste. Inventive engineers created the central sewer system which drained into a river where moving water, sunlight, oxygen and bacteria could break down the contamination. The smell and pollutants of smoke from the city dump was an accepted thing and served as a directional indicator for all residential and commercial development to move in the opposite direction.

Life killing chemicals moving into a river became the symbol of prosperity which meant more jobs and more money for more people. Housewives could hurry to the city's stores to buy more and more material things which in itself became another hallmark of prosperity. The waste from this activity continued to grow and become a serious problem.

As young men and women moved to the city they served their urban boundage until accumulated affluency enabled them to move out into the cleaner suburban countryside.

Now the suburban areas are becoming sicker with many of the same problems which plagued the city. In some areas of the country there is limited direction in which to run from the rivers man has converted to sewers, the land he has saturated with material waste, the air he has polluted with smoke as well as poisonous gases from the automobile.

Because of this movement to the urban areas for greater prosperity, the city and town is rapidly becoming an unpleasant place to live, and the land, water and aerial wastes are accumulating faster than they can be removed.

The here and the now:

The biggest problem with man's environment is the fact that too many of his kind live in too limited an area at the same time. This statement may be self-evident and contradictory to people who have worked hard to solve some of the prevailing environmental problems. An individual can grow very pessimistic about the situation and although apparently justified in some situations, it is not the condition which will instigate change. Nothing constructive has ever ekanated from a pessimistic viewpoint. What is needed is an enlightened citizenry equipped with an adequate framework of reference sufficient enough to motivate participation in action programs leading to the alleviation or modification of our environmental problems.

The development of this enlightened and informed citizenry is represented

by two approaches. One approach is immediate action so vitally needed in contemporary society. This avenue would concern itself with those individuals who constitute our adult population and would concentrate its program of information dissemination through all the medias of communication including newspapers, radio, television, and films. It would also avail itself to conferences, workshops, forums, conservation commissions, legislative involvement, community planning boards, local, state, and federal involvement and support. Immediate results are going to mean vast amounts of monetary support. The profit motive of many enterprises is going to have to be challenged by the powerful impact of pressure groups who are able to underwrite their activities for as long as it takes to effect change. These activities will involve many groups and the problem of coordination will represent one of the largest hurdles to be encountered.

The second approach is of longer range in perspective. It involves the children and youth of our nation. The largest segment of our population in one place at one given time is the private and public school group. Of this specific population the largest segment concentrated in more limited areas are those who attend schools in urban areas. It is recommended that an experiential program in environmental education be provided for students rather than one of indoctrination via the lecture method. This experience program should be related to the subjects students study in their regular school curriculum.

Basic concepts and understandings of the environment should not only be an integral part of every subject matter area at each grade level, but should also spiral upward through the grades. A concept or basic understanding can be introduced at the primary level and continue upwards through the grades attaining sophistication and refinement with each succeeding step. The program of environmental experience need not mean the allocation of more time, space, and equipment.

Cases in point:

An example of integration with the existing broad curriculum is illustrated by the following example. A sixth grade class is studying mathematics, social studies, science, language arts, and health as part of their every day routine. A concern for the pollutants in the environment is motivated as a social problem by the teacher in a social studies class. It emanates from a discussion of how people choose an area to live and work.

An introduction to the environmental conditions hostile to man's continued existence arises. Reading the literature in magazines, newspapers, vieving filmstrips and television broadcasts, the class is motivated to participate in some type of action research. The class decides to investigate the pollutant contributions to the atmosphere by jet aircraft. The students learn that one jet aircraft emits 88 pounds of pollutants per take-off. The class decides that a field trip to the local city jetport is imperative.

Upon arrival at the airport they proceed to count the number of planes taking off each hour. The students multiply the average of planes taking off per hour by the poundage of pollutants emitted by one plane. They next multiply the number of hours that the airport is operative by the average number of jet aircraft taking off per hour by the poundage of pollutants per plane. The total figure is astonishing to the students. The data is so astronomical in proportion that the class decides to continue their investigations and disseminate their information.

The mathematics class is utilized for the data treatment and analysis. The science class is utilized in developing equipment for collecting and measuring pollutants at the jetport. The language arts class becomes the center for written material concerning the students' findings and is submitted for publication. Oral presentations are prepared by the students for delivery on local radio and television stations. The art class becomes the scene for the

preparation of an exhibit illustrating the pollution of jet aircraft with suggested proposals for its modification or removal. The class decides that it will continue its investigation of pollutants in the atmosphere when they learn that one automobile emits 500 pounds of pollutants per year. Plans are formulated for the conduction of field trips similar to the jetport trip at strategic intersections in the city.

A secondary school biology class in a city is studying ecology. They have explored vacant lots, sidewalks, railroad track right of ways, roadsides, and the city park as part of their field experience.

The teacher suggests that they might try to do an ecological study of an abandoned apartment buulding. The class decides that they will embark on a study of the habitation of a deserted city apartment house for evidence of life other than that of man.

The ecological investigation entails the constructing and setting of coffee-can live traps for rodents. The students complete this task themselves during school time. Sweet traps are then placed throughout the building baited with honey or sugared water for the study of existing insect life. Scat boards are placed throughout the building for the determination of rodent populations by analysis of the incidence of droppings on each board. Peanut butter is placed on each of the boards as an attraction for various types of rodents and small mammals.

The class was able to identify several ecological niches complete with all sources of food supply to each niche. The class also explores the immediate exterior environment of the old building including the rooftops. The interdependency of living things is firmly established despite the apparent lifeless look of the old building.

An elementary class is also interested in air pollution. They decide to conduct their investigation with kites in order to ascertain gypsum dust

particles saturating the air in their neighborhood. The students utilize gauze material covered with a grease substance and attach the gauze strip to each kite. The kites are then flown from various positions in the neighborhood in order to ascertain the amount of dissipation of the dust particles at succeeding distances from the source. The class decides to replicate this same experiment by utilizing microscope slides each covered with a petroleum grease substance and attached to the line with clothes pins. Additional information is then added to the data previously obtained and the class next concerns itself with the dissemination of the data.

The above described activities as well as many more can contribute a great deal to the development of an environmental awareness. . . .for these same students will become adult citizens. They will seldom view the environment with apathy because their experiences were direct, firsthand, and their active involvement precipitated retention. It is this retention of concepts and values that conservation and environmental educators are concerned about with reference to attitudinal changes. This in itself is motivation enough for firsthand investigations of the environmental urban climate. It is a learning climate that should be a part of the indoor-outdocr-indoor approach to environmental understandings.

There are many opportunities at various grade levels for environmental explorations of the city environment. Through the eyes of the ecologist man in an agricultural and/or urban setting is always viewed as a part of the total ecosystem. Any imbalance or disturbance in the supportive ecosystem can cause serious setbacks and can cause deterioration or demise if adaptation is not fast enough or does not occur at all.

Urban Man's Need for Environmental Perception:

A beautiful and delightful city environment is not commonplace and some individuals would say an impossible thing to achieve. Not many American

cities larger than 10,000 inhabitants are of consistent fine quality although a few have some pleasant fragmented features. Very few Americans can ascertain what it means to live in such an environment. They are cognizant of the ugliness of the environment in which they live, and they can verbalize about the dirt, the smoke, the congestion, the chaotic conditions, and even the monotonous routine of daily living. Seldom are citizens aware of the potential value of harmonious surroundings.

The late Aldo Leopold, (1887-1948) Professor of Game Management, University of Wisconsin, has defined conservation as being, "harmony between man and land".[1] This simple definition has been adhered to by some architects, planners, conservationists and others who are concerned with environmental problems.

Most Americans lack basic knowledge of what a high quality environment can mean in terms of daily enjoyment or as a continuous framework of reference for their lives. The use of this knowledge can produce deeper insights into the meaningfulness and richness of the exciting journey of life. The ability to structure or identify the environment is common among those animals who are capable of agile movement. Many kinds of perceptions are utilized: the senses of touch, smell, hearing, sight, gravity and balance, the visual sensations of color, shape, rhythm, motion are all biological techniques of orientation to the environment.

Social scientists, ecologists, anthropologists, philosophers, and other disciplinarians have observed the ability of the general body sensorium to organize from simple to complex patterns. The professional literature emanating from the activities of the above mentioned professional people indicated that this organization is basic to the efficiency and survival of mankind.

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[1] Aldo, Leopold, A Sand County Almanac. New York: Oxford Press, 1966, p. 222.

A keen perception of one's environment can give the individual the element of choice and a point of departure for the acquisition of additional information. A clear and distinct perception of both the internal and external environments is thus an essential ingredient for the total growth of an individual. It can also establish a degree of emotional security and the individual can begin to perceive a harmonious relationship between himself and the immediate external surroundings. A distinctive and identifiable perception can also serve to vitalize the potential of life as the gap between man and the external environment narrows.

The need for environmental education for the urban scene is very apparent. The environment when perceived through the various academic vehicles can give distinction and relationships and the observer can with his ability of adaptation and in keeping with his aspirations begin to select, organize and support with greater meaning that which he perceives. As a major manipulator of his external environment man must maintain his constant interest in qualitative changes and to continued existence.

Man has had no constraints either moral, philosophical or otherwise except those which physically limited his freedom to exploit, manage or conserve his environment. This freedom has meant latitude to progress but at the same time has also provided the freedom to retrogress.

Mankind now has the opportunities and the abilities to achieve a maximum yield environment and human life or to destroy both in a manner previously unparallelled. He has destroyed many times without knowledge or the ability to foresee the consequences of his acts. With long traditions of these attitudes he never felt his responsibility for these consequences. Early man was forced to improve his perception of the environment by adapting to the immediate landscape. He made minor changes in this environment with primitive edifices, religious and trail cairns, but significant modifications

were not within his frames of reference. Only those civilizations who have mastered some technology and science can change or modify their environment on a large scale.

The rehabilitation or remolding of the large scale environment has been only recently made possible and consequently the techniques and modus operandi involved in creating environmental awareness are new. The need for an informed and aware citizenry is now. Our present youth and the next several generations must act as a guiding force for the world that they want to live in successfully. They have to enter the present and future world as educated citizenry capable of making global intelligent universal decisions.

It is not the intention of this paper to infer a return to a primeval nature system which is no longer available even if we desired it. What is inferred is that parallel to the natural ecological scene we must create a new system, that of an urban ecological structure.

The need for environmental education for the megalopolite is an integral part of the total struggle for survival. We can survive if as a species our planning is in complete balance and harmony with those ecological conditions that sustain life. It is that vital - it is that simple.